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ABSTRACT

This study examines behavioral mediators which might possibly be associated with risk taking. Specifically, it is concerned with answering the question of whether there are attributes of a risk taking situation which make it more conducive for males to take greater risks than for females. The situation used in this experiment, a regulation blackjack or "21" game, employs a procedure where information about outcomes is direct, immediate, and irreversible. The author assesses the effects of outcomes on risk taking for males and females in an effort to determine whether the Blascovich et al. (1973) results would replicate and to ascertain the possible existence of a sex difference unique to the effects of outcomes. (VG)

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Sex Differences in Risk Taking as a Function of Outcome Effects[1]

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Sex Differences in Risk Taking as a Function of Outcome Effects[1]

Recent experiments have indicated that there are sex differences in risk taking behavior (cf., Bauer and Turner, 1974; Knowles, Ginsburg, Smith, and Blascovich, 1975). These results raise questions about behavioral mediators which are possibly associated with risk taking. Specifically, are there attributes of a risk taking situation which are more conducive for males to take greater risks than for females?

One way to assess such a question is through an examination of behavior following outcomes presented to subjects in a risk taking situation. For a situation to be truly "risky," subjects ought to have little or no control over the outcomes which result from their decisions. However, it is not unreasonable to presume that outcomes related to prior decisions might affect subsequent decisions. To test this possibility, it is necessary to employ a procedure where information about outcomes is direct, immediate, and irreversible. An ideal situation is provided by a regulation blackjack, or "21," game.

Blascovich and his associates (Blascovich, Veach, and Ginsburg, 1973) have demonstrated that males in a coacting group will bet more in a blackjack game than will males who play alone against the house. Both types of players will increase, absolutely, the amount of their bets following both wins and losses over the assigned number of hands. The amount of the increase after a loss is less than the amount of the increase after a win. Blascovich et al. thus concluded that outcomes had no significant effect on subjects' propensities to shift toward greater levels of risk. In the experiment reported here, I assess the effects of outcomes on risk taking behavior for males and females. I was specifically interested in determining whether or not the

Blascovich et al. (1973) results would replicate and if a sex difference would be observed specific to the effects of outcomes.

Procedure

Ninety-six subjects were drawn from the psychology department subject pool. Forty-eight males and forty-eight females were randomly assigned to sexually homogeneous conditions. Within each condition, there were eight groups of three players each. In the control condition (Individual - Individual), subjects were assigned to statistical groups of three, rather than to actual, coacting groups.

Upon arriving at the laboratory, the subjects were placed in separate waiting rooms and then escorted individually to a room which is designed to resemble a small casino. The "casino" is appropriately furnished with a regulation "21" table, gaming chips, slot machines, and a trained blackjack dealer. The subjects were instructed to play a finite but unspecified number of hands of blackjack alone against the house. After twenty hands of play, the subjects were removed to their waiting rooms. At this time, the experimental manipulations were introduced. Subjects were returned to the "casino" to play an additional twenty hands of blackjack. They either played alone against the house for a second time (I - I condition), or in a coacting group of three players (I - Co condition). After completing this final set of twenty hands, the subjects were debriefed and thanked for their participation.

The amount bet by each subject prior to each hand was used as the measure of risk. A four factor split-plot factorial analysis of variance was used to analyze these bets (Kirk, 1969, pp. 311-312). The four factors were experimental condition, sex of subject, session of play, and the outcome. Repeated measures were made on sessions and outcomes.

Results

Mean bets after wins and after losses were computed for each session of play and for each group separately. These results are summarized in Table 1, and presented graphically in Figure 1.

TABLE 1 HERE

FIGURE 1 HERE

It will be seen that the male subjects generally increased their bets after wins and losses in both conditions. This is true for females as well, with the exception of those subjects assigned to the experimental condition (I - Co). Subjects in that condition decreased their bets following a win across sessions.

The analysis of variance computed on these means in summarized in Table 2.

TABLE 2 HERE

Generally, it will be seen that there is an outcome effect. There is also an interaction between the sex of the subject and the session of play. These results support prior findings of a sex difference in risk taking behavior, and suggest that such a difference may be associated with outcomes.

Figure 1 illustrates a difference between male and female responses. This is apparent primarily in the I - Co condition. It is of interest to

determine whether or not the female groups differ from each other by condition of play (I - I vs. I - Co) and by outcomes across sessions. To investigate this question, Tukey's T method (Glass and Stanley, 1970, pp. 383-384) was used for pairwise comparisons of female bets. The differences in mean bets between sessions for the control group after wins and losses were compared separately from the mean bets for the experimental group after wins and losses. It was necessary to transform these means to square roots in order to decrease the range in scores. No comparison produced statistically significant results, even at an inflated alpha value ($p<.10$) which was employed due to the exploratory nature of this experiment.

Discussion

These results tend to confirm the suggestion put forth by Knowles et al. (1970) that females might be more attentive to the external aspects of a risk taking context, such as the outcomes, than are males. Blascovich et al. (1973) have suggested that social psychological factors, such as esteem, are more salient for males. The results for male subjects reported here would tend to confirm their suggestion. The results for females reported here show that, in a group, females tend to increase the amount they bet more following a loss than a win. This may represent a sort of "gambler's fallacy." Female subjects may assume that the probability of winning a hand is greater after a loss than after a win. Perhaps the presence of other players in the room strengthens such an assumption by providing comparative information.

The findings reported here, and the few others which have been reported on sex differences in risk taking, suggest a number of subsequent research conditions. First, it is unclear if there are social

conditions which would facilitate greater risk among females than among males (when the groups are sexually homogeneous). Second, if the type of group under study is varied, is it reasonable to expect that such variation will have an effect of the level of risk taking observed? For example, if females must first discuss the situation, and reach a consensus on the amount to be bet, will their behavior be "riskier" or more cautious as a result? Finally, it is unclear why objective outcomes would be more important for females, and why subjective outcomes would be more important for males. This represents a reversal of the belief traditionally held about factors which possibly account for sex differences in behavior. However, it should be apparent that the findings reported here deal only with phenomenon of risk taking behavior, and not generally with sex differences in behavior.

Footnote

[1]The research reported here is one in a series of experiments designed to investigate risk taking behavior conducted at the University of Nevada, Reno. The assistance of Mr. David Lawson Smith and Professor Gerald P. Ginsburg is gratefully acknowledged.

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Table 1

Mean Bet Levels by Outcome, by Session

		Session 1 (b_1)		Session 2 (b_2)	
		After Wins (d_1)	After Losses (d_2)	After Wins (d_1)	After Losses (d_2)
MALES	I-I	44.63	34.89	52.71	44.93
	I-Co	34.18	28.04	54.90	42.16
FEMALES	I-I	28.21	18.67	33.93	18.86
	I-Co	35.68	21.32	32.25	23.11

Figure 1

Mean Bet Levels by Sex of Subject, Session, and Outcome

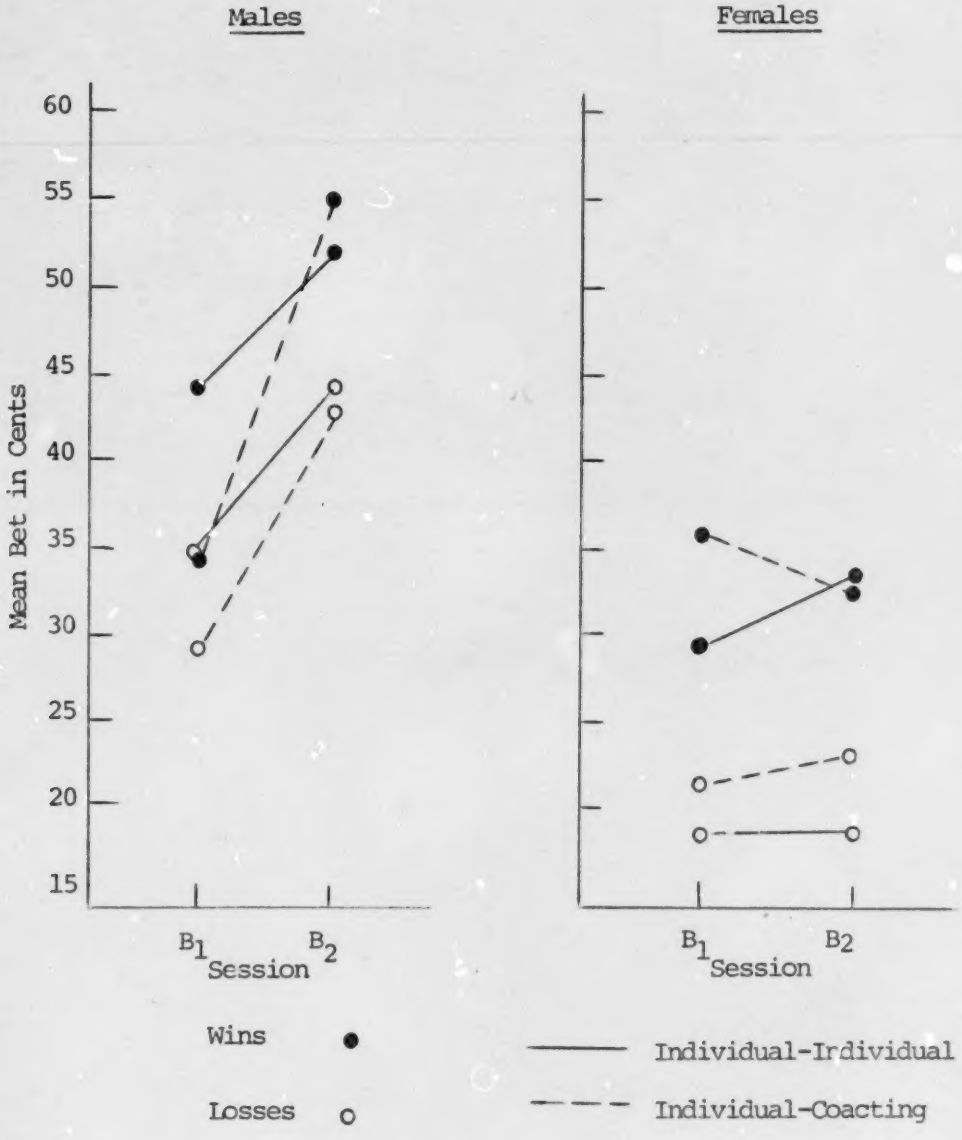

Table 2

Analysis of Variance Summary

Source	SS	df	MS	F	
Between subjects	23538.97	31	759.32		
Condition (A)	13.46	1	13.46	>1.00	
Sex of Subject (C)	7740.01	1	7740.01	14.15	p<.01
AC	467.38	1	467.38	>1.00	
Subjects within groups	15318.12	28	547.08		
Sessions (B)	1637.56	1	1637.56	12.53	p<.01
AB	41.97	1	41.97	>1.00	
BC	1184.33	1	1184.33	9.06	p<.01
ABC	294.42	1	294.42	2.25	
B x Subjects within groups	3660.23	28	130.72		
Outcome (D)	3571.50	1	3571.50	68.82	p<.01
AD	0.03	1	0.03	>1.00	
CD	68.37	1	68.37	1.32	
ACD	3.03	1	3.03	>1.00	
D x Subjects within groups	1453.30	28	51.90		
BD	12.21	1	12.21	>1.00	
ABD	2.42	1	2.42	>1.00	
BCD	9.47	1	9.47	>1.00	
ABCD	186.70	1	186.70	4.96	
BD x Subjects within groups	1053.26	28	37.62		